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(19) (24) # CANADIAN PATENT

(54) VIBRATION TECHNIQUE FOR ROT DETECTION IN WOOD POLES AND TREES

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ABSTRACT

A method of detecting for the presence of decay in a wooden pole, and which involves subjecting the pole to a mechanical vibrational force at a frequency falling within the sonic frequency range, measuring the level of energy emerging from the pole at a number of axially spaced points along the length of the pole (the energy being measured in terms of R.M.S. velocity or acceleration of vibrations) and comparing themeasurements of the emergent energy at the respective points.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A method of detecting for the presence of decay in a wooden pole, the method comprising the steps of: exciting said pole by a source of mechanical vibration applied at a preselected peripheral one point along the length of said pole, measuring emergent vibrational energy levels from said pole at a number of other selected axially spaced points along the length of said pole, said other points including a point substantially opposed to said one point of application of said vibrations, comparing the relative emergent energy levels at said respective other points, and detecting for a predetermined increase in the level of emergent energy at selected ones of said axially spaced other points, such an increase in emergent energy level being an indication of the presence of decay within the pole.

2. A method of detecting for the presence of decay in a wooden pole, the method comprising the steps of: exciting said pole by a source of mechanical vibration at a resonant frequency applied at a selected peripheral one point along the length of said pole, measuring emergent energy from said pole at a number of selected axially spaced other points along the length of the pole, including a point substantially opposed to said one point of application of said vibrations, comparing the relative emergent energy levels at said respective other points, and detecting for a predetermined increase in the level of emergent energy at selected ones of said axially spaced other points, such an increase in emergent energy level being an indication of the presence of decay within the pole.

3. A method claimed as in claim 2 wherein the vibrations applied are at a frequency falling within the sonic frequency range.

4. A method as claimed in claim 2 wherein said axially spaced other points are located along a peripherally axial line which is diametrically opposed to said one point.

5. A method as claimed in claim 2 wherein the emergent energy levels at said respective axially spaced other points is measured by a transducer

which provides an output signal representative of the R.M.S. velocity or the acceleration of mechanical vibrations occurring at said other points, said transducer being connected in a circuit with a read-out device.

6. A method as claimed in claim 5 wherein said transducer comprises a piezo-electric device.

7. A method as claimed in claim 5 wherein a single said transducer is applied in succession to each of said axially spaced points.

8. A method as claimed in claim 5 wherein a said transducer is applied to each of said axially spaced other points, each transducer being selectively connected in circuit with said read-out device by a switching mechanism.

9. A method as claimed in claim 2 wherein said mechanical vibrations are applied by way of an electro-magnetic vibrator.

10. A method as claimed in claim 9 wherein said vibrator is energised by a signal delivered by a square-wave oscillator.

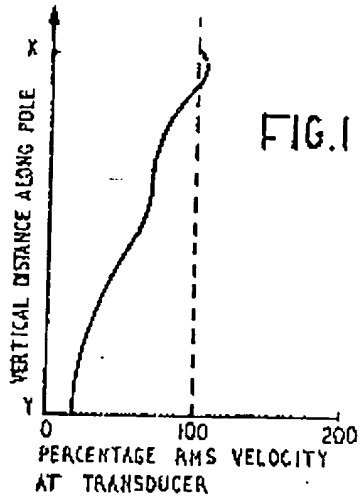

FIG.1

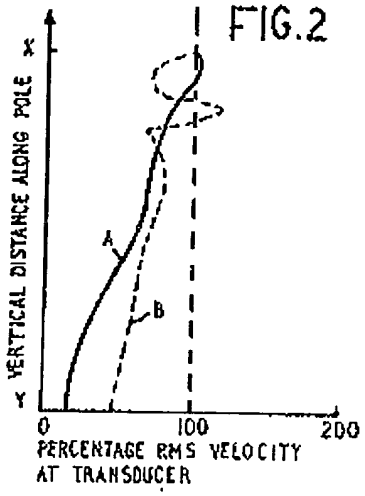

FIG.2

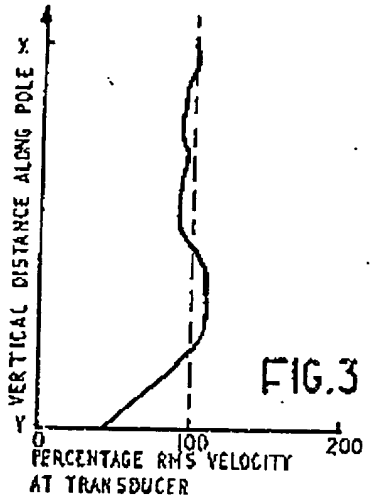

FIG.3

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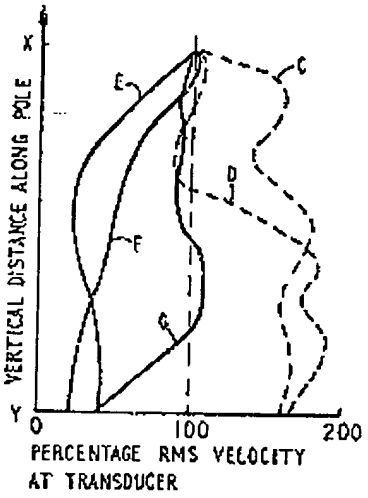

FIG.4

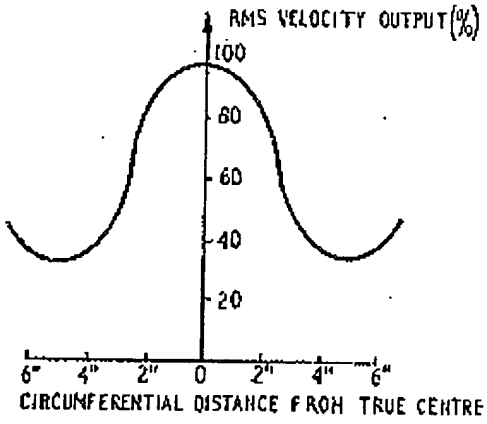

FIG.5

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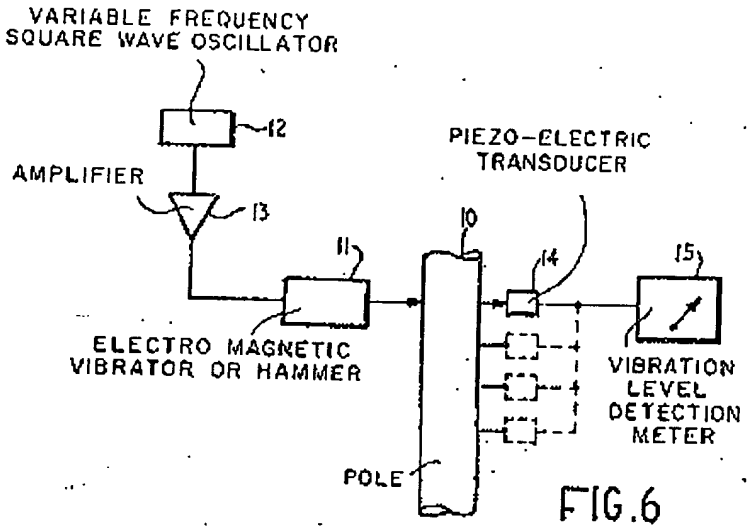

FIG.6

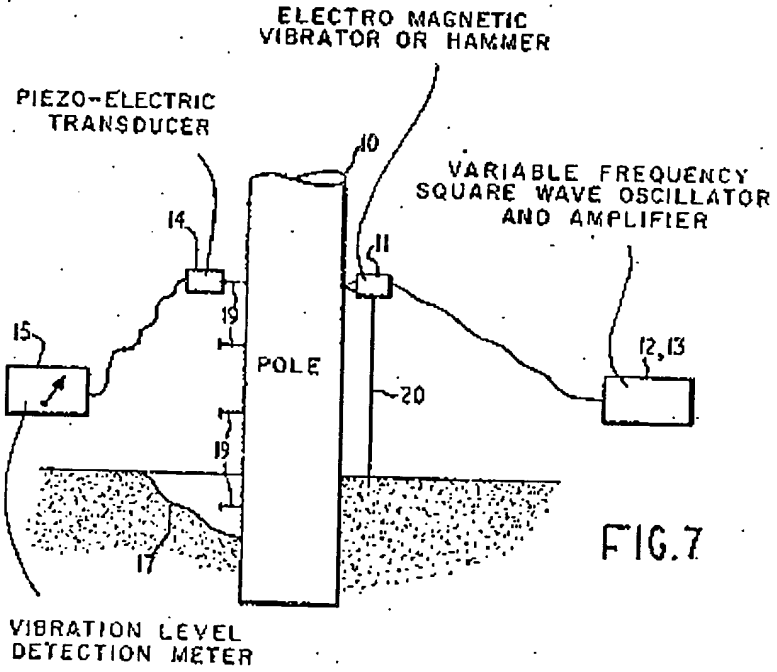

FIG.7

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